

Date: Monday, 10/16/2006 10:32:20 AM
User: Kim Johnston

Process Sheet

Customer : CU-DAR001 Dart Helicopters Services Drawing Name : 407 HIGH AFT X-TUBE ASSEMBLY
Job Number : 28984
Estimate Number : 10528
P.O. Number : *N/A* Part Number : D407667205
This Issue : 10/16/2006 S.O. No. : *N/A* Drawing Number : D407-667-245 REV *0* *07.07.21*
Prsht Rev. : NC Project Number : N/A
First Issue : *N/A* Type : LANDING GEAR Drawing Revision : *0*
Previous Run : 28983 Material : *N/A*
Written By : _____ Due Date : 11/8/2006 Qty: 1 Um: Each
Checked & Approved By : *06/10/16*
Comment : Est Rev: C 05.09.02 Add holes for compatibility with Bell
Skidtubes KJ/JLM

Additional Product

Job Number:



Seq. #: Machine Or Operation: Description :

1.0 DC

DOCUMENT CONTROL



Comment: DOCUMENT CONTROL

Photocopy bluefile and create labels as per PPP D407-667-205CH0003

*CHG 004 PA 07.03.21**HAS DS19366**K-S 07.07.14*

2.0 D6011115

Crosstube Material



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

Qty Part number Description Batch

1: D6011-115 Crosstube *B195100*

Check OD = 2.750"; ID = 1.450"

M8 06/10/19

3.0

MORI SEIKI

MORI SEIKI CNC LATHE LARGE



Comment: MORI SEIKI CNC LATHE LARGE

1-Fill tube with sand & install plugs DT8531 on both ends as per Folio FA248

2-Turn first side as per Folio FA248

3-Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D407-667-245. *M8 06/10/20*

4.0

QC1

INSPECT ALL DIM TO DIM SHEET



Comment: INSPECT ALL DIM TO DIM SHEET

M8 06/10/20

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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Part Number: D407667205

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Seq. #:

Machine Or Operation:

Description :

5.0

MORI SEIKI

MORI SEIKI CNC LATHE LARGE



Comment: MORI SEIKI CNC LATHE LARGE

1-Turn second side as per Folio FA248

2-Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D407-667-245

3-Polish entire outside surface of crosstube

4-Remove sand and plugs

5-Scribe part # and batch # using vibrating stylus as per Dwg D407-667-245

Inside of Cuff(Donot engrave on outside of tube)

MS 06/10/20

6.0

QC1

INSPECT ALL DIM TO DIM SHEET



Comment: INSPECT ALL DIM TO DIM SHEET

MS 06/10/20

7.0

QC8

SECOND CHECK



Comment: SECOND CHECK

MS 06/12/11

8.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Chemical Conversion Coat as per QSI 005 4.1

Ensure no sand is in the tube before alodine.

DP/50

6/12/12

①

9.0

LANDING GEAR 1

LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Bend tube as per Dwg D407-667-245 using CNC bender program 407 Aft and Folio FT

DP 7-2-1

10.0

QC6

DIMENSIONAL CHECK



Comment: DIMENSIONAL CHECK

MS 07/02/05

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Job Number: 28984

Part Number: D407667205

Job Number:



Seq. #:

Machine Or Operation:

Description:

11.0

LANDING GEAR 1

LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

- 1-Drill pilot holes in tube using drill Jig DT8583 & DT8584 as per Dwg D407-667-245. Drill all (3) top holes.
- 2-Drill and Ream all holes in tube to finish size using drill Jig DT8583 & DT8584 as per Dwg D407-667-245. Check dimensions between holes on all four sides.
- 3-Flip tube and switch drilling Jigs from right to left, left to right. Locate Jigs off existing holes using "T" pins.
- 4-Drill pilot holes using drill Jig DT8583 & DT8584 as per Dwg D407-667-245. Drill only the top (2) holes.
- 5-Drill & ream the top (2) holes to finish size using drill Jig DT8583 & DT8584 as per Dwg D407-667-245
- 6-Drill Aft rivet holes using drill Jig DT8789 as per Dwg D407-667-245. Note: Aft side has 3x top holes.
- 7-Drill Fwd rivet holes using drill Jig DT8789 as per Dwg D407-667-245. Drill only the top (3) holes.
- 8-C'sink holes as per Dwg D407-667-245. Allow rivet to sit below surface to compensate for paint.
- 9-Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D407-667-245

IT
07-02-28

JP/JO 7-3-1

12.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Chemical Conversion Coat as per QSI 005 4.1

JP/JO 7-3-1

13.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

BF 07-03-02

14.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

0703-06
Did LPI

15.0

OUTSIDE SERVICE

OUTSIDE SERVICES



Comment: Sub-Contracting OUTSIDE SERVICES

Liquid Penetrant Inspection as per QSI 038 Or
Issue P/O: 3238 LPI as per ASTM 1417
Level 2 Attach copy of NDT results to work order

CJ 07/03/04

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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Process Sheet

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Job Number: 28984

Part Number: D407667205

Job Number:



Seq. #:

Machine Or Operation:

Description :

16.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Inspect for transit damage

Ensure copy of NDT results attached to work order.

PC 7/3/5 (1)

17.0

QC6

DIMENSIONAL CHECK



Comment: Inspect for damage & ensure results are as per Dwg D407-667-245

07-03-12 (1)

18.0

SPRAY PAINTING

SPRAY PAINTING



Comment: SPRAY PAINTING

1-Prime inside and outside crosstube as per QSI 005 4.2

mm

07-03-13

(1)

2-Paint outside crosstube with White Imron as per QSI 005 4.2

mm

19.0

QC14

Inspect Spray Paint



Comment: Inspect Spray Paint

Wrap in plastic bag to protect from scratches

07-03-14

20.0

D2856400

Abrasion Strip



Comment: Qty.: 1.3524 f(s)/Unit Total : 1.3524 f(s)

Pick:

Qty Part number--Description--Batch

2 D2856-400(Cut to 7.73") Abrasion Strip

027850

PC

07-03-20

21.0

D2856600

Abrasion Strip



Comment: Qty.: 0.7445 f(s)/Unit Total : 0.7445 f(s)

Pick:

Qty Part number Description Batch

1 D2856-600(8.510") Abrasion Strip

NA magnesbond AT

22.0

D2873043

Nut Plate Assembly



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Pick:

Qty Part number Description Batch

2 D2873-043 Nut Plate

28387/30449

PC 07-03-20

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Job Number: 28984

Part Number: D407667205

Job Number:



Seq. #:

Machine Or Operation:

Description :

23.0

D2873045

Nut Plate Assembly



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Pick:

Qty Part number Description Batch

2 D2873-045

Nut Plate

28695

BT 07-03-20

24.0

D28941

2.750 Support



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

Qty Part number Description Batch

1 D2894-1

Support

19163

BT 07-03-20

25.0

D31901

Chafing Shield



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Pick:

Qty Part number Description Batch

2 D3190-1

Chafing Shield

20773

BT 07-03-20

26.0

MS20601AD4W8



Comment: Qty.: 14.0000 Each(s)/Unit Total : 14.0000 Each(s)

Pick:

Qty Part number Description Batch

14 MS20601AD4W8-Rivet

100771

BT 07-03-20

27.0

MS2192022

Clamp(per MIL-DTL-8783C)



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

Pick:

Qty Part number Description Batch

4 MS21920-22

Clamp

102389

BT 07-03-20

28.0

MS2192024

Clamp(per MIL-DTL-8783C)



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Pick:

Qty Part number Description Batch

2 MS21920-24

Clamp

103007

BT 07-03-20

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

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Drawing Name: 407 HIGH AFT X-TUBE ASSEMBLY

Job Number: 28984

Part Number: D407667205

Job Number:



Seq. #:

Machine Or Operation:

Description :

29.0

LANDING GEAR 1

LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

STOP

1-Install abrasion strips as per QSI 035 using DT8674. Install chafing shield as per Dwg D407-667-245. Note:
(3) top holes should be facing up.

2-Install supports and clamps as per Dwg D407-667-245. Torque clamps to 80-100 in lb

3-Install nut plates as per Dwg D407-667-245. Touch-up rivet heads with Imron paint.

POSITIVE RECALL
EFFECTIVE 07.01.03 AUTH
RELEASED 07-03-21 DATE

30.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

7-3-22

31.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Pick Packing Kit

07/03/23 (1)

32.0

AN534A

Bolt



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

Bolt

Batch: M101340-

33.0

MS21042L5

Nut



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

Nut

Batch: M100564-

34.0

AN510A

Bolt



Comment: Qty.: 10.0000 Each(s)/Unit Total : 10.0000 Each(s)

Pick: Packing Kit

Qty Part number

10 AN5-10A

Description Batch

Bolt M103389-

07/03/23 (1)

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	
07.03.21	29.0	1) <u>DELETE</u> D2856-600-851 Abrasion strips <u>REPLACE WITH</u> D3595-075-430 B <u>103838</u> RUBBER CUSHIONS DRAWING NOW IT REV-D	PH	07.03.21				
		2) MAGNOBOND 6398 SUPPORT I-A-W QSI 015						

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes ☒ No ☐ DQA: ☒ Date: 07/03/21
QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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Drawing Name: 407 HIGH AFT X-TUBE ASSEMBLY

Job Number: 28984

Part Number: D407667205

Job Number:



Seq. #:

Machine Or Operation:

Description :

35.0

AN532A

Bolt



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

Pick:Packing Kit

Qty Part number

Description Batch

4 AN5-32A

Bolt M103338-

36.0

AN960JD516

Washer



Comment: Qty.: 18.0000 Each(s)/Unit Total : 18.0000 Each(s)

Pick:Packing Kit

Qty Part number

Description Batch

18 AN960JD516

Washer M102519-

37.0

QC4

INSPECT 100% KITS FOR COMPLETENESS



Comment: INSPECT 100% KITS FOR COMPLETENESS

38.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and pack for shipping as per PPP D407-667-205

Location:

PPP Rev:

NOW AT CHG 004 include

DsI 9366

DS 9366

R# 0703.21

39.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

Job Completion



U 07.03.26

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD	Work Order: 28984
Description: Crosstube Assembly	Part Number: D407-667-245
Inspection Dwg: D407-667-245 Rev: C	Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

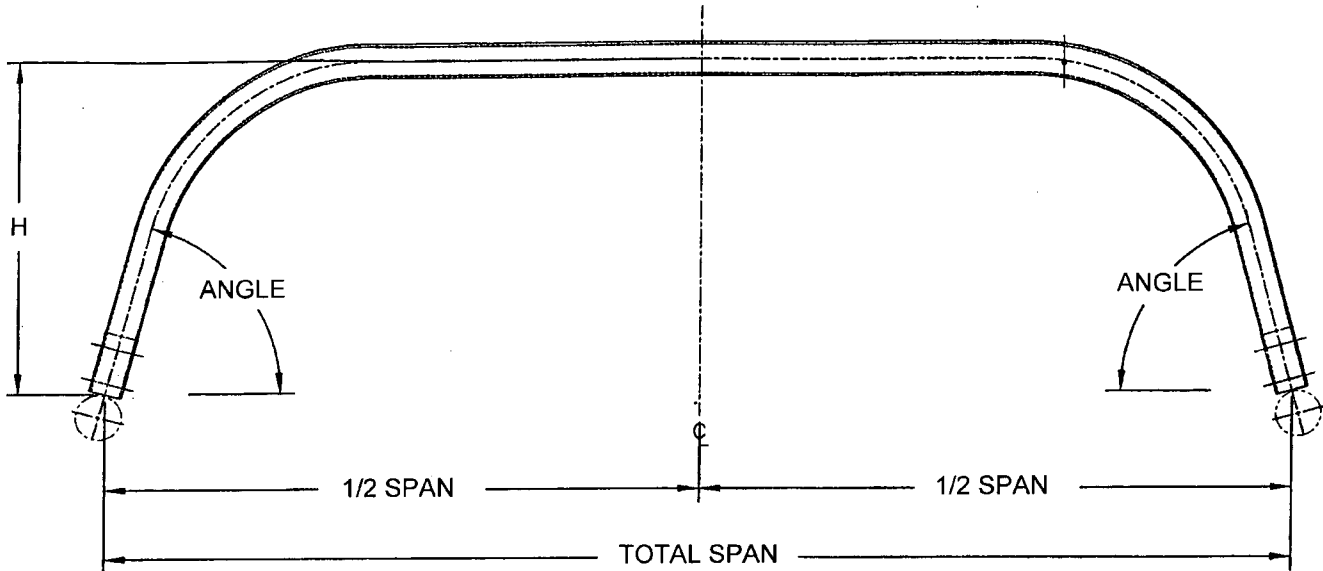
☒ First Article
 ☐ Prototype

Inspection Sheet	Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	2.490	+0.005/-0.000	2.495	✓			
	1.832	+0.005/-0.000	1.836	✓			
	1.838	+0.005/-0.000	1.843	✓			
	1.892	+0.005/-0.000	1.897	✓			
	2.052	+0.005/-0.000	2.056	✓			
	2.206	+0.005/-0.000	2.211	✓			
	2.521	+0.005/-0.000	2.526	✓			
	2.633	+0.005/-0.000	2.637	✓			
	4.10	+/-0.030	4.10	✓			
	4.978	+/-0.030	4.978	✓			
	2.040	+0.000/-0.010	2.032	✓			
	0.125	+/-0.010	.125	✓			
	R0.063	+/-0.010	.063	✓			
	R0.500	+/-0.010	.500	✓			
SIDE B	2.490	+0.005/-0.000	2.494	✓			
	1.832	+0.005/-0.000	1.836	✓			
	1.838	+0.005/-0.000	1.842	✓			
	1.892	+0.005/-0.000	1.896	✓			
	2.052	+0.005/-0.000	2.056	✓			
	2.206	+0.005/-0.000	2.210	✓			
	2.521	+0.005/-0.000	2.525	✓			
	2.633	+0.005/-0.000	2.637	✓			
	4.10	+/-0.030	4.10	✓			
	4.978	+/-0.030	4.978	✓			
	2.040	+0.000/-0.010	2.032	✓			
	0.125	+/-0.010	.125	✓			
	R0.063	+/-0.010	.063	✓			
	R0.500	+/-0.010	.500	✓			
	112.91	+/-0.020	112.91	✓			

Measured by: MB	Audited by: JML	Prototype Approval:	N/A
Date: 06/10/20	Date: 06/12/11	Date:	N/A

Rev	Date	Change	Revised by	Approved
A	04.04.21	New Issue (P/O D407-667-205)	KJ/RF	
B	06.03.09	Dwg Rev updated	KJ/JLM	
C	06.03.30	Tolerance revised for 4.978 dimension	KJ/JLM	

Crosstube Bend Dimension Sheet



PART NUMBER: _____

BATCH NUMBER: 28984

DRAWING: _____ REVISION: _____

H: _____

1/2 SPAN: _____

TOTAL SPAN: _____

ANGLE: _____

QC 15: _____

DATE: _____

QTY: _____



DESIGN PH	DRAWN BY PH	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED DS	APPROVED DS	DRAWING NO. D407-667-245	REV. C SHEET 1 OF 3
DATE 05.07.26		TITLE CROSSTUBE ASS'Y (407 HIGH AFT)	SCALE NTS
A	02.05.13	NEW ISSUE	
B	03.05.21	ADD CHAFING SHIELD	
C	05.07.26	ADD HOLES AND NUT PLATES FOR COMPATABILITY WITH BHT/AA SKIDTUBES	

Qty	Part Number	Description
X	D407-667-245	CROSSTUBE ASSEMBLY (407 HIGH AFT)
1	D6011-115	CROSSTUBE
2	D2856-400-773	ABRASION STRIP
1	D2856-600-851	ABRASION STRIP
2	D2873-043	NUT PLATE
2	D2873-045	NUT PLATE
1	D2894-1	SUPPORT
2	D3190-1	CHAFING SHIELD
14	MS20601AD4W8	RIVET (OR NAS9302B-4-8)
4	MS21920-22	CLAMP
2	MS21920-24	CLAMP

GENERAL NOTES:

- 1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 2) MATERIAL: MANUFACTURED FROM D6011-115
FINISHED LENGTH = 112.91 ± 0.020
- 3) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 4) PART IS SYMMETRIC ABOUT CENTERLINE.
- 5) RUN-OFF PART. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 6) BEND PROGRESSIVELY WITH A MINIMUM OF 6 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 7) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 8) SCRIBE DART PART NUMBER AND BATCH NUMBER IN THIS AREA WITH VIBRATING STYLUS.
- 9) INSTALL D2856-400-773 / D2856-600-851 ABRASION STRIP WITH A 0.13 (REF) GAP ON BOTTOM SIDE OF CROSSTUBE, CENTERED OPPOSITE D2894-1 SUPPORT, PER QSI 035.
- 10) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 11) SEAL EDGES OF SUPPORTS AND ABRASION STRIP USING SIKAFLEX-241/291 SEALANT (OPTIONAL).
- 12) TORQUE CLAMPS 80 TO 100 IN-LB.
- 13) INSTALL D3190-1 CHAFING SHIELDS SO THAT OVERLAP IS ON BOTTOM SIDE OF CROSSTUBE OPPOSITE D2894-1 SUPPORT.

UNDER REVIEW

06.06.23 CB

update dwg
continue mfg

UNDER REVIEW

06.07.10 PH

re-draw Detail &

OK
06.10.16
PH

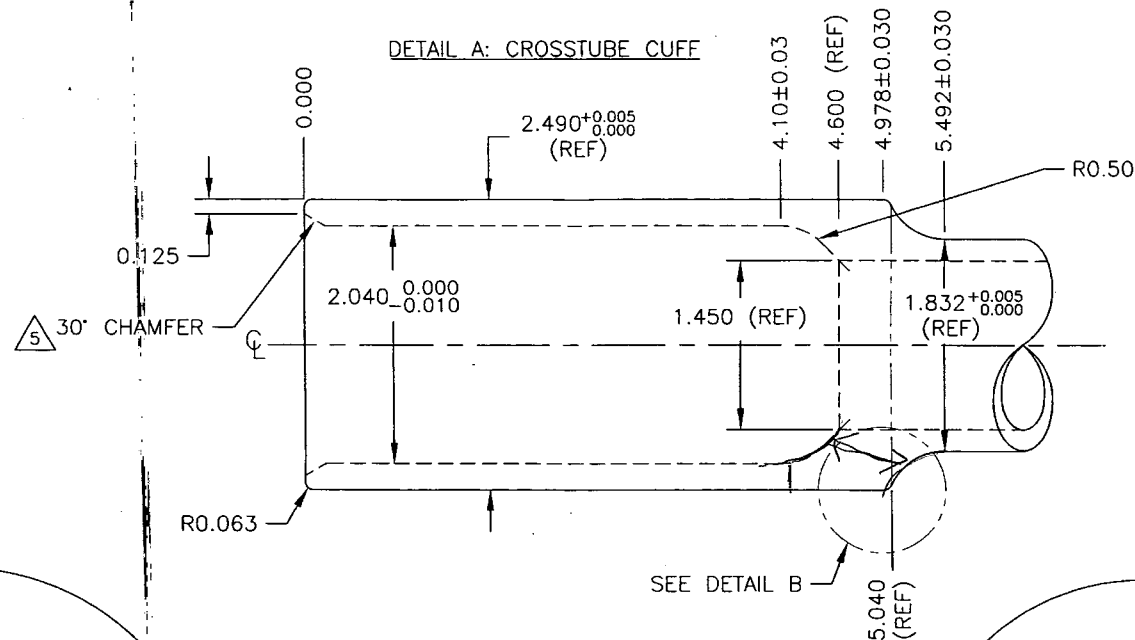
SHOP COPY
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WITHOUT NOTICE
WORK ORDER
NO. 28784

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DETAIL A: CROSSTUBE CUFF



UNDER REVIEW

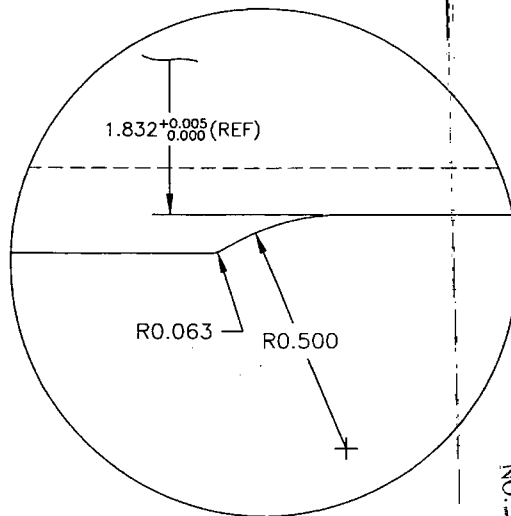
06.08.10 PH
re-draw detail b

OK
06.10.10

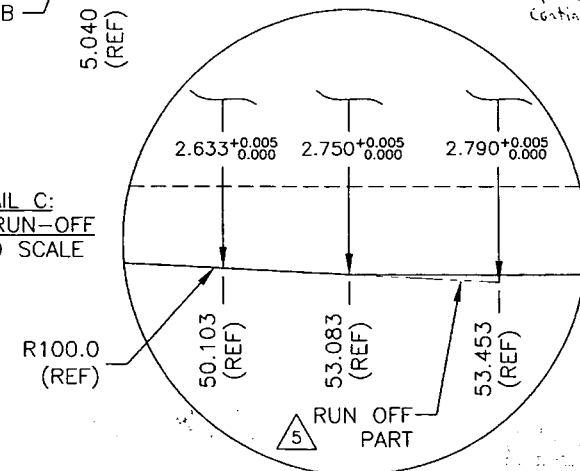
PH UNDER REVIEW

06.06.23 CB
update dwg
continue sig

DETAIL B: CUFF TRANSITION SCALE 4:1



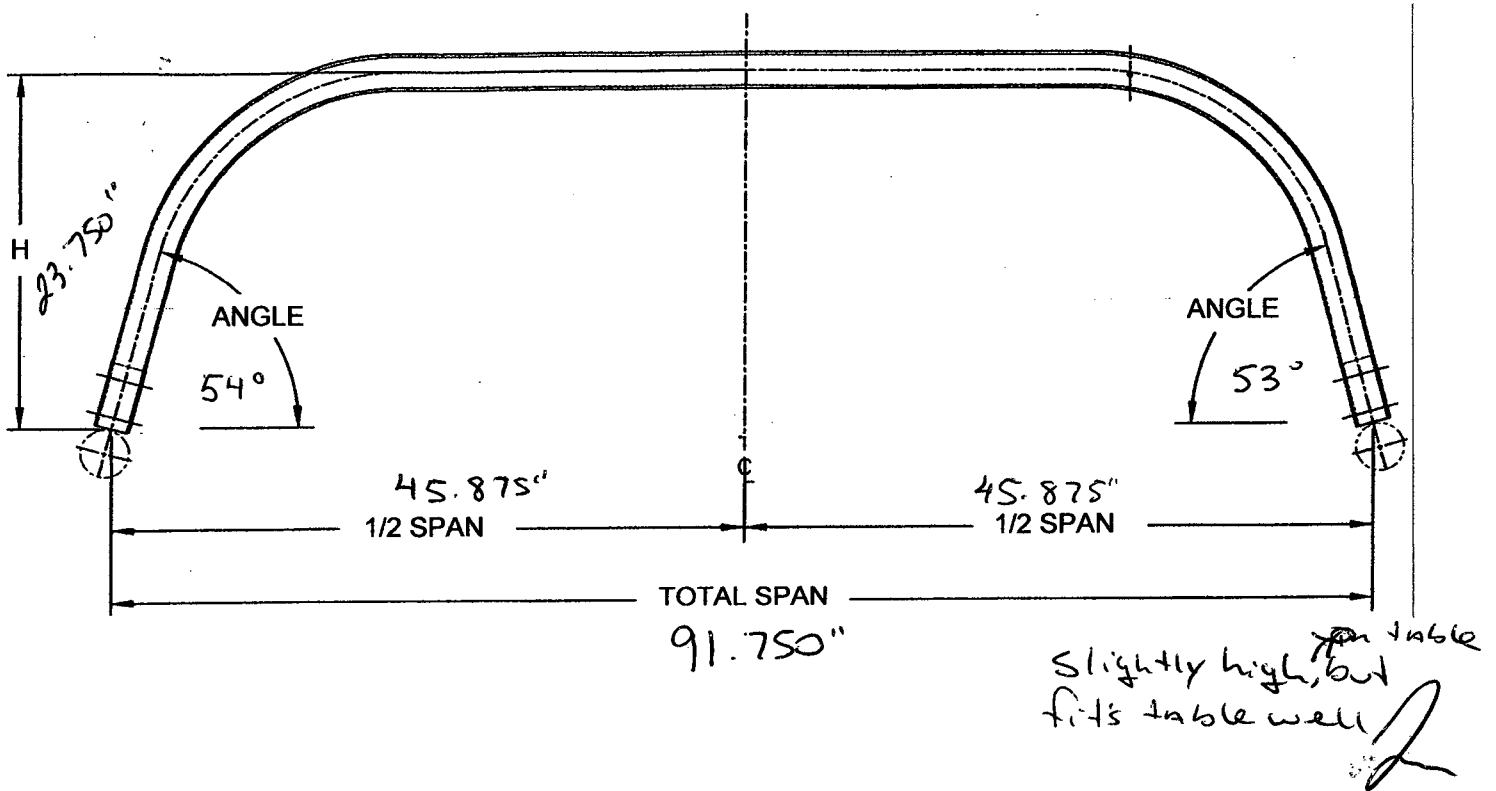
DETAIL C: TAPER RUN-OFF NOT TO SCALE



NO. 28184
WORK ORDER
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WITHOUT NOTICE
ENGINEERING
RETURN TO
SHOP COPY

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		PH	PH	REV. C	
THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.		CHECKED ADS	APPROVED ADS	DRAWING NO. D407-667-245	SHEET 3 OF 3
		DATE 05.07.26		TITLE CROSSTUBE ASS'Y (407 HIGH AFT)	SCALE 1:1

Crosstube Bend Dimension Sheet



PART NUMBER: A407 667 205

BATCH NUMBER: 28984

DRAWING: A407 667 245 REVISION: C

H: 23.52

1/2 SPAN: 45.92

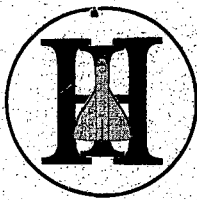
TOTAL SPAN: 91.84

ANGLE: 54°

QC-15: M

DATE: 07/02/05

QTY: 1



HeathAir

INTERNATIONAL (1991) INC.

681 Ave. Lepine, Dorval, Québec H9P 1G3
Tél.: (514) 636-1000 • Fax: (514) 636-0031

W.O. N° 35894

A.M.O. Number: 46/90

NON-DESTRUCTIVE TESTING REPORT

AIRCRAFT / COMPONENT INFORMATION

REGISTRATION:

MODEL/TYPE:

SERIAL NUMBER:

TOTAL HR/LDG:

OPERATED BY:

BASED AT:

INSPECTION REQUIREMENTS

Carry out FPI of six (6) cross tubes (external surface) as per ASTM E-1417-05 and the Dart QSI 038, Section 4.1.1 (on file at client) - parts delivered to HeathAir.

Qty. (4) P/N D206-667-103 S/N's B29626, B29629, B29628 & B29630

Qty. (1) P/N D206-667-101 S/N B28681

Qty. (1) P/N D407-667-205 S/N B28984

☐ RADIOGRAPHY

☐ ULTRASONIC

☒ PENETRANT

☐ MAGNETIC PARTICLE

☐ EDDY CURRENT

INSPECTION REPORT

Fluorescent penetrant inspection was performed in accordance with the above requirements on six (6) cross tubes.

Note: A Level 3 penetrant was substituted for the requested Level 2 (3 is more sensitive)
Ardrox 970P25E Batch #04B503.

Six (6) cross tubes PASSED inspection.

THE MAINTENANCE DESCRIBED ABOVE HAS BEEN PERFORMED IN ACCORDANCE WITH
THE APPLICABLE STANDARDS OF AIRWORTHINESS

INSPECTED BY:

S. FLETCHER

DATE March 7, 2007

INSPECTION
STAMP(S) Not Required

CUSTOMER INFORMATION

CUSTOMER: Dart Aerospace

P.O. NUMBER

3238

ADDRESS:

CONTACT NAME:

LABOUR

@

\$

MATERIALS

@

TRAVEL EXPENSES

@

GST

HOTEL EXPENSES

@

PST

INVOICE NO.

TOTAL \$

WHITE COPY - INSPECTION FILE • YELLOW COPY - CUSTOMER • PINK COPY - ACCOUNTANT



DESIGN PH	DRAWN BY PH	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED H	APPROVED H	DRAWING NO. D407-667-245	REV. D SHEET 1 OF 3
DATE 07.02.07		TITLE CROSSTUBE ASS'Y (407 HIGH AFT)	SCALE NTS
A	02.05.13	NEW ISSUE	
B	03.05.21	ADD CHAFING SHIELD	
C	05.07.26	ADD HOLES AND NUT PLATES FOR COMPATABILITY WITH BHT/AA SKIDTUBES	
D	07.02.07	ADD VIEW FOR OEM SKID HOLES, ROTATE ORIENTATION OF CLAMPS SECTION F-F, REMOVE -851 ABRASION STRIP, ADD MAGNOBOND 6398, ADD CUSHION	

RELEASED
07.02.14 H

Qty	Part Number	Description
X	D407-667-245	CROSSTUBE ASSEMBLY (407 HIGH AFT)
1	D6011-115	CROSSTUBE
2	D2856-400-773	ABRASION STRIP
2	D2873-043	NUT PLATE
2	D2873-045	NUT PLATE
1	D2894-1	SUPPORT
2	D3190-1	CHAFING SHIELD
2	D3595-075-430	RUBBER CUSHION
14	MS20601AD4W8	RIVET (OR NAS9302B-4-8)
4	MS21920-22	CLAMP
2	MS21920-25	CLAMP (OR MS21920-24)

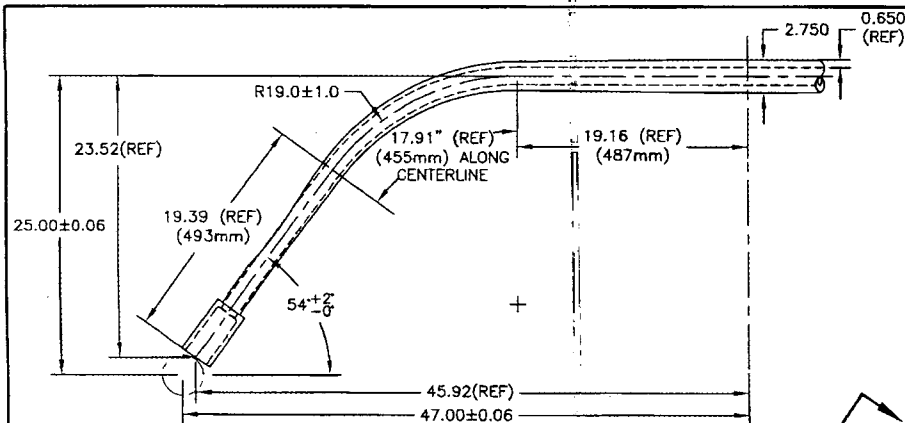
GENERAL NOTES:

- 1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 2) MATERIAL: MANUFACTURED FROM D6011-115
FINISHED LENGTH = 112.91±0.020
- 3) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 4) PART IS SYMMETRIC ABOUT CENTERLINE.
- 5) RUN-OFF PART. BLEND OUT EDGE LONGITUDINALLY. TRANSITION SHOULD BE SMOOTH.
- 6) BEND PROGRESSIVELY WITH A MINIMUM OF 6 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 7) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 8) SCRIBE DART PART NUMBER AND BATCH NUMBER IN THIS AREA WITH VIBRATING STYLUS.
- 9) INSTALL D2856-400-773 ABRASION STRIP WITH A 0.13 (REF) GAP ON BOTTOM SIDE OF CROSSTUBE, PER QSI 035.
- 10) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 11) INSTALL D2894-1 CENTER SUPPORT USING A 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 12) INSTALL MS21920-25 CLAMPS WITH D3595-075-430 RUBBER CUSHIONS TO SECURE D2894-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE CROSSTUBE SUPPORT.
NOTE: MS21920-24 CLAMPS CAN BE USED TO ACCOMMODATE VARYING DIAMETERS. ENSURE THERE IS A MINIMUM OF 1.5 THREADS IN SAFETY ON THE NUTS.
- 13) TORQUE CLAMPS 80 TO 100 IN-LB.
- 14) INSTALL D3190-1 CHAFING SHIELDS SO THAT OVERLAP IS ON BOTTOM SIDE OF CROSSTUBE OPPOSITE D2894-1 SUPPORT.

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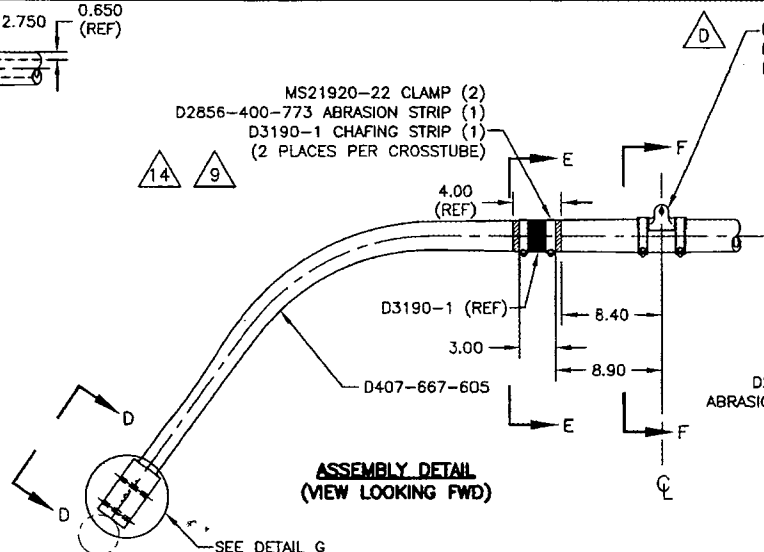
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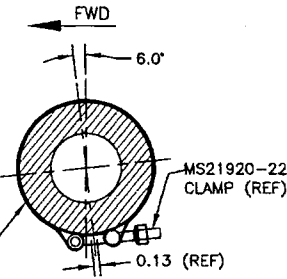
BENDING DETAIL 6

MS21920-22 CLAMP (2)
D2856-400-773 ABRASION STRIP (1)
D3190-1 CHAFING STRIP (1)
(2 PLACES PER CROSSTUBE)



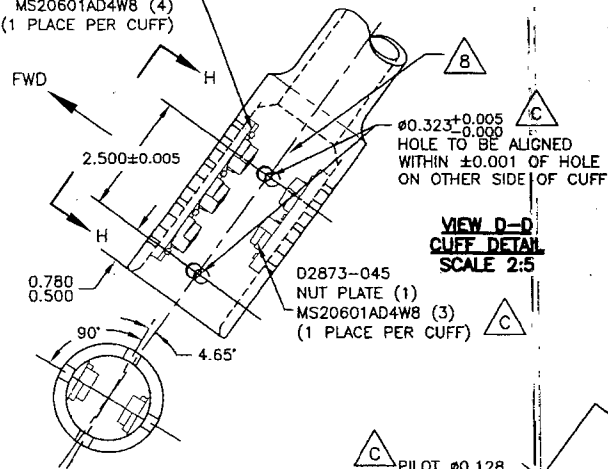
**ASSEMBLY DETAIL
(VIEW LOOKING FWD)**

D2894-1 SUPPORT (1)
D3595-075-430 RUBBER CUSHION (2)
MS21920-25 CLAMP (2)



**SECTION E-E
SCALE 2:5**

D2873-043
NUT PLATE (1)
MS20601AD4W8 (4)
(1 PLACE PER CUFF)



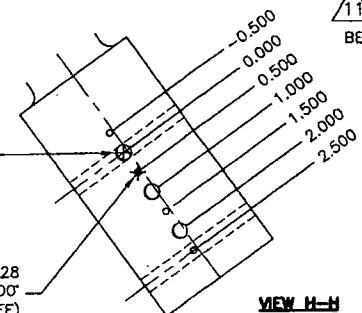
**VIEW D-D
CUFF DETAIL
SCALE 2:5**

PILOT Ø0.128
C'SINK Ø0.225X100\"/>

**DETAIL G
SCALE 2:5
(VIEW LOOKING FWD)**

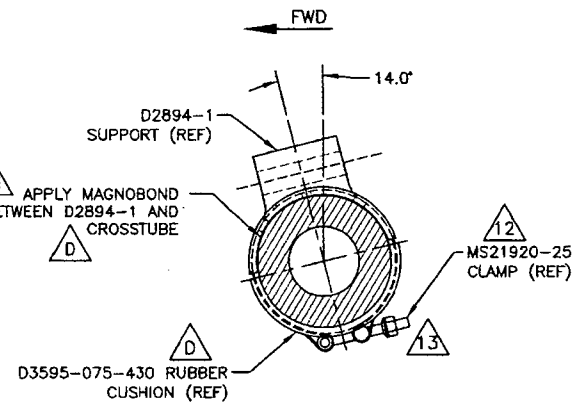
Ø0.323±0.005
HOLE TO BE ALIGNED WITHIN ±0.001 OF HOLE ON OTHER SIDE OF CUFF

PILOT Ø0.128
C'SINK Ø0.225X100\"/>



**VIEW H-H
SCALE 2:5
(VIEW LOOKING AFT, ROTATED)**

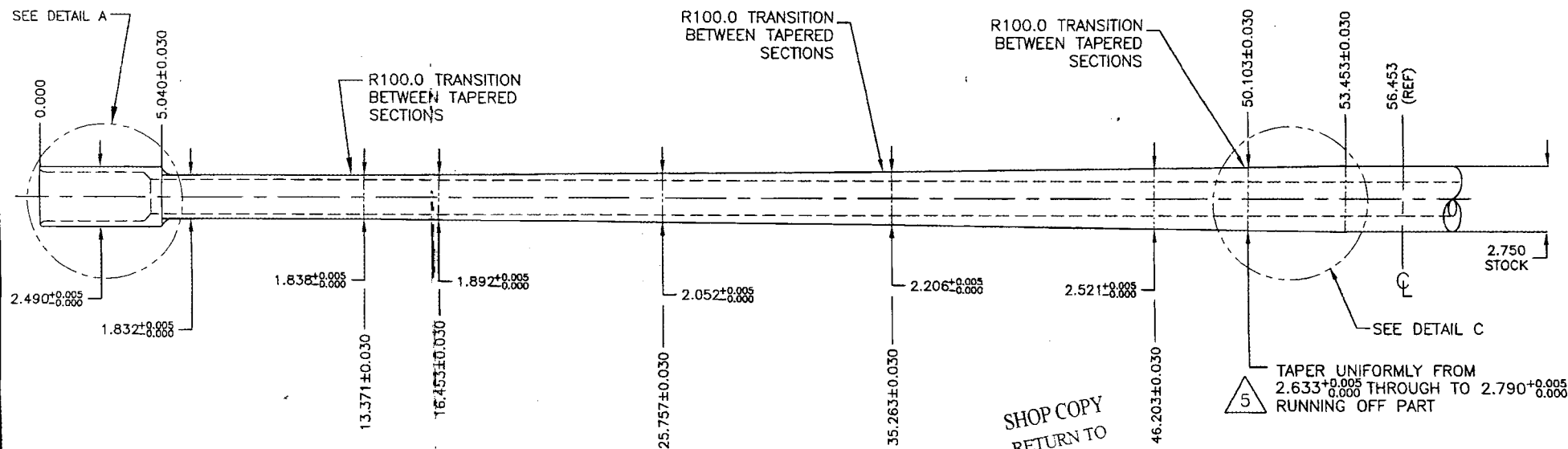
APPLY MAGNOBOND BETWEEN D2894-1 AND CROSSTUBE



**SECTION F-F
SCALE 2:5**

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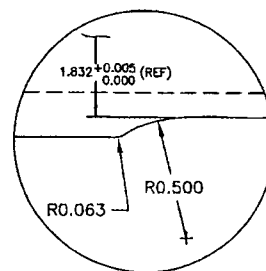
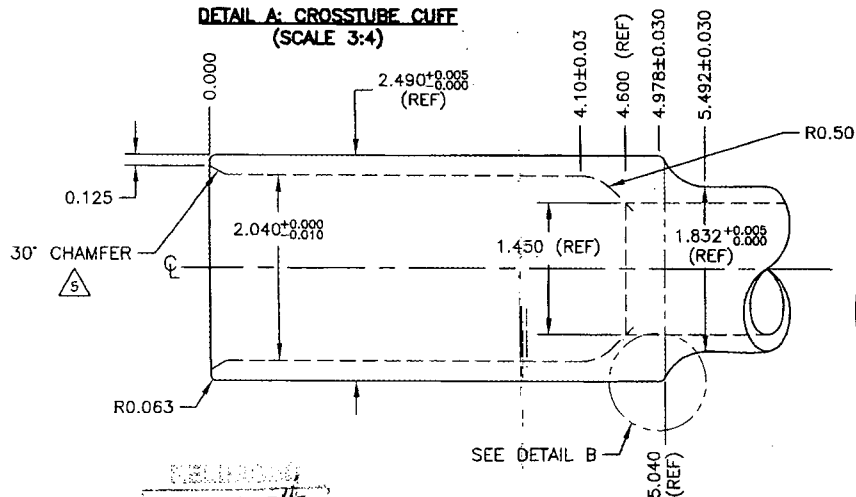
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CHECKED	APPROVED	DRAWING NO.		REV. D	
		D407-667-245		SHEET 2 OF 3	
DATE		TITLE		SCALE	
07.02.07		CROSSTUBE ASS'Y (407 HIGH AFT)		1:10	



D407-667-245 MACHINING DETAIL

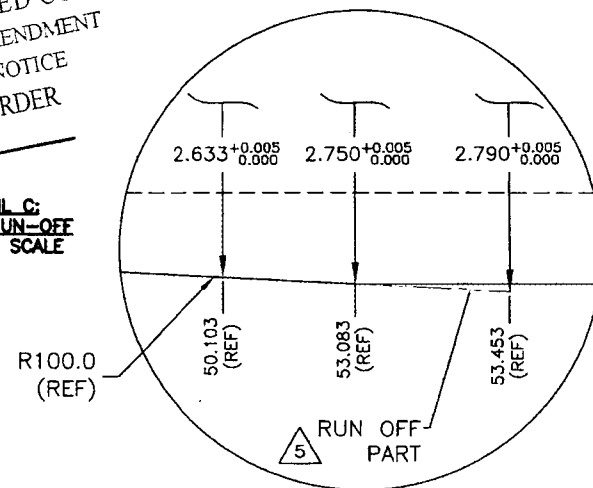
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DETAIL A: CROSSTUBE CUFF
(SCALE 3:4)



DETAIL B: CUFF
TRANSITION
SCALE 2:1

DETAIL C:
TAPER RUN-OFF
NOT TO SCALE



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CHECKED	PH	APPROVED	PH	DRAWING NO.	REV. 0
DATE	07.02.07			D407-667-245	SHEET 3 OF 3
				TITLE	SCALE
				CROSSTUBE ASS'Y (407 HIGH AFT)	1:4

DART

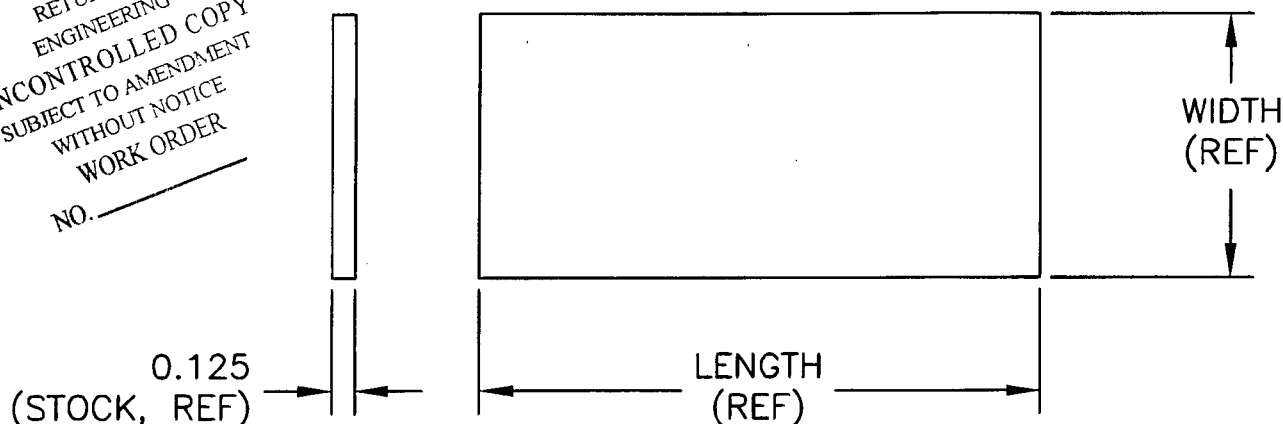
DESIGN PH	DRAWN BY PH	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED [Signature]	APPROVED [Signature]	DRAWING NO. D3595	REV. A SHEET 1 OF 1
DATE 07.02.07		TITLE RUBBER CUSHION	SCALE NTS
A	07.02.07	NEW ISSUE	

RELEASED

07.02.14 [Signature]

SPECIFICATION CONTROL DRAWING

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SPECIFICATION: D3595-XXX-YYY RUBBER CUSHION

WIDTH
LENGTH

EG: 0.75"x4.30" RUBBER CUSHION = D3595-075-430

NOTES

- 1) MATERIAL: BLACK NEOPRENE SHEET, 0.125 THICK,
80 DUROMETER (REF DART SPEC. M-NEO80-S.125)
- 2) FINISH: NONE
- 3) ALL DIMENSIONS ARE IN INCHES
- 4) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED

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